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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/049,357

05/22/2002

Seiji Asaoka

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06/27/2007

NATIONAL STARCH AND CHEMICAL COMPANY

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EXAMINER

WILLIAMS, LEONARD M

ART UNIT

PAPER NUMBER

1617

MAIL DATE

DELIVERY MODE

06/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/049,357

Applicant(s)

ASAOKA ET AL.

Examiner

Leonard M. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-14 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-14 AND 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/27/2007 has been entered.

Response to Amendment

Applicant's amendment received 2/27/2007 amending claim 10. Claims 1-9 and 15 have been previously cancelled. Claims 10-14 and 17-20 are pending.

The applicant's have amended claim 10 to include:

"wherein the amphoteric urethane resin is formed from the reaction of a polyol chosen from polyester polyol and/or polyether polyol, a polyisocyanate, a compound having active hydrogen(s) and carboxyl group(s), and a compound having active hydrogen(s) and tertiary amino group(s),"

The examiner respectfully points out that this is a composition claim and as such the patentability of the composition is not determined by how it is made (see product by process claims). Further the prior art of record includes all of the compounds described

in the amended section and it is the position of the examiner that the prior art and rejections of record still obviate the introduced language to the claim.

The amendment of claim 10 does overcome the 112-2 rejection and thus that rejection is withdrawn.

Response to Arguments

Applicant's arguments filed 02/27/2007 have been fully considered but they are not found persuasive.

The applicant's state on page 5 of the arguments that Bhatt does not teach tertiary amines and states that primary amines are preferred. The examiner respectfully points out that Bhatt was not relied upon to teach secondary or tertiary amines but amines in general as being present in the compositions. °

The applicant's argue that neither Bhatt nor Kim et al. teach the amphoteric urethane resin and a water soluble resin. The examiner respectfully disagrees. Bhatt discloses that the hair spray compositions contain a variety of conventional optional ingredients including emulsifiers, such as anionic or nonionic surfactants, preservatives, cationic conditioners, such as cetyl trimethyl ammonium chloride, coloring agents, etc.. Additionally the aqueous formulations can contain plasticizers such as glycols, phthalate esters, glycerine, silicones, protein hydrosylates, emollients, lubricants, penetrants, lanolin compounds, ethylene adducts and polyoxyethylene cholesterol. Thus Bhatt discloses water-soluble polymers (anionic and nonionic surfactants, silicones, protein hydrosylates, ethylene adducts, and polyoxyethylene cholesterol) other than the

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amphoteric urethane resin. Additionally Bhatt teaches a polyurethane resin that contains a carboxylic acid group and an amine in one polymer. Kim teaches that secondary and tertiary amines are interchangeable and Kim teaches a water-soluble resin that could be combined with Bhatt's polyurethane resin. One of ordinary skill in the art at the time the invention was made would have realized that one could combine Bhatt's polyurethane resin with a carboxyl group and an amine with the water soluble resin of Kim, and further that the secondary and tertiary amines of Kim could be used to make the polyurethane resin of Bhatt. The motivation is the same as set forth in the previous office actions.

The applicants argue on pages 4-5 of the remarks that Bhatt does not teach or suggest amphoteric urethane resins having structural units derived from ethylene oxide. The examiner respectfully disagrees. On page 4 of Bhatt in paragraphs 0036-0047, it is taught that the polyurethane resin can be made with polyoxyethylene diols. The examiner points out that polyoxyethylene diols are polymers of ethylene oxide units ending in terminal alcohols, thus Bhatt does teach urethane resins derived from ethylene oxide.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

For the reasons detailed above and for reasons of record the 103(a) rejections of claims 10-14 and 16-20 described in the last office action are maintained. The 103(a) rejection of the last office action are included below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-15, 17, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. (2002/0071811) in view of Kim et al. (6,335,003).

The instant invention is directed toward a composition comprising an amphoteric urethane resin having at least one carboxyl group and at least one tertiary amino group in one molecule, and a water-soluble resin.

Bhatt et al. teach hair spray compositions containing a carboxylated polyurethane. The polyurethane contains polyoxyalkylene units, such as polyoxyethylene soft segments which impart hydrophilicity to the polyurethane. Amines, such as ethylenedamine, propylenedamine, monoethanolamine, and diglycolamine, can be added to the polyurethane resin reaction mixture.

On page 4 paragraphs 0036-0047, Bhatt et al. teach that the polyurethane resin can be made with polyoxyethylene diols having a molecular weight of 400-20,000. As each ethylene oxide (EO) unit is approximately 44Mw then the number of possible ethylene oxide units is 9.1 to 454.5 EO.

Bhatt discloses, in paragraphs 0067-0069, that the hair spray compositions contain a variety of conventional optional ingredients including emulsifiers, such as anionic or nonionic surfactants (water soluble polymers), preservatives, cationic conditioners (water soluble polymers), such as cetyl trimethyl ammonium chloride, coloring agents, etc..

The carboxylated polyurethane resins are soluble in ethanol/water mixtures. The reference lacks tertiary amines. See abstract; (0024J-(0025); (00361; (0050).

Kim et al. teach cosmetically acceptable polyurethane resins. The polyurethanes are formed from at least one diisocyanate or reaction product thereof with one or more compounds containing two or more active hydrogen atoms per molecule, and at least one diol, primary or secondary amino alcohol, primary or secondary diamine or primary or secondary triamine each with one or more tertiary, quaternary or protonated tertiary amine nitrogen atoms. Propylene diamine is taught as a suitable diamine. The polyurethanes resins are taught as beneficial because of their flexibility and decrease of stickiness and brittleness when applied to the hair.

Hairsprays and hair setting lotions are taught as preferred forms of the compositions. See abstract', Col. 1, line 41-Col. 2, line 1 1,* Col. 2, line 58-1ine 65*, Col. 7, line 57-Co1. 8, line 7.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the tertiary amines taught by Kim et al. for the amines taught by Bhatt et al. because of the expectation of achieving a hair spray formulations that in addition to imparting excellent set retention to the hair, as taught by Bhatt, additionally decrease the stickiness and brittleness of the product when applied to the hair and to maintain hair elasticity. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the tertiary amines taught by Kim et al. for the amines taught by Bhatt et al. because Bhatt et al. teach diamines as part of their resins and Kim et al. teach diamines as interchangeable with tertiary for application to the hair.

It is respectfully pointed out amines in polyurethane resins that a) the carboxyl group and tertiary amine of the combined polyurethane resin result in an amphoteric resin, and that b) the combined resin is a water-soluble resin.

Claims 11-13, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. and Kim et al. as applied to claims 10-15, 17, 18, 20 above, and further in view of de la Poterie et al. (5,972,354) in view of Bolich et al. (5,100,658).

Bhatt et al. and Kim et al. are applied as discussed above. The references lack a polysiloxane bond and anionic, nonionic, and cationic resins.

de la Poterie et al. teach cosmetic compositions comprising film-forming polymers. Polycondensates, such as anionic, cationic, nonionic, or amphoteric

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polyurethanes and mixtures thereof are taught as film forming polymers. The

polyurethane is taught as comprising at least one silicone-containing block.

The instant films are taught as supple, flexible, elastic, and as not substantially lifting off once applied. See Col. 2, line 17-1ine 62; Col. 3, line 3-Co1. 4, line 42.

Bolich et al. teach silicones, in the form of resins, as hair conditioners. See Col. 13, lines 56-65, Col. 9, lines 51-53.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the silicone containing blocks of a polyurethane resin, taught by de la Poterie et al. to the polyurethane resin of the combined references because of the expectation of achieving a polyurethane resin that imparts conditioning properties to the hair, as taught by Bolich et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add anionic, cationic, or nonionic polyurethane resins, as taught by de la Poterie et al., to the composition of the combined references because the combined references teach amphoteric polyurethanes and de la Poterie et al. teach anionic, cationic, nonionic, and amphoteric polyurethane resins as combinable and because of the expectation of achieving compositions with films that are supple, flexible, elastic, and do not substantially lift off once applied.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard M. Williams whose telephone number is 571-272-0685. The examiner can normally be reached on MF 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LMW



SREENI PADMANABHAN
SUPERVISORY PATENT EXAMINER